REMARKS

Claims 1-45 are pending in the present application. Claims 1-45 were rejected in the last Office Action. These rejections are respectfully traversed and reconsideration is requested. Consideration of the arguments is proper at this time under 35 U.S.C. 1.116 since the Examiner's last Office Action, dated March 26, 2003, raised many new issues.

Summary

One aspect of the present invention is directed towards a method of supporting communication between multiple remote transceiver devices and a network. Each of multiple logical connections between the remote transceivers and the network includes multiple wireless links. More specifically, data flows can be supported between multiple remote transceivers and a hub over a first wireless link. The hub, in turn, can be coupled to a wireless transceiver device, such as an access unit, via a hard-wired link. The wireless transceiver device coupled to the hub device can further support data flows over a second wireless link to a base station that is itself coupled to a network. Consequently, each of multiple remote transceivers can establish individual logical connections over a two-tiered wireless communication system. In one application, logical computer-to-computer connections are supported by a transport protocol.

This method of communicating is advantageous because it enables multiple remote users to communicate with a target network through a common hub, that itself is potentially mobile. For example, the hub and wireless transceiver device can be a mobile system supporting wireless data flows between multiple remote transceivers and a base station. In this instance, not only can the remote transceivers be portable devices, the hub itself can be portable relative to both the base station and remote users.

In another application, the second wireless link is a subscription-based unit in which resources are allocated on an as-needed basis to support variable communication rates. This aspect of the invention is particularly advantageous in applications where multiple remote users sharing a common link desire short term, high speed wireless access to the network device through a base station. Based on this inventive configuration, resources of the second wireless link can be allocated as needed to support data flows for transmitting or receiving data

information over a corresponding logical connection. One instance in which this aspect of the invention is beneficial is a case when a remote terminal is connected to the Internet and the remote unit demands short bursts of high speed data throughput.

Cited References

Pasanen (WO 99/22493) discloses a system in which multiple peripheral devices are coupled to a local area network. A server is coupled to the network to support communication among the peripheral devices.

Tehro, *et al.*, (EP 0 663 785 A2) discloses a method of transferring data over a radio telephone network and mobile station.

Mahany (US 5,546,397) discloses a high reliability access point for RF communications in a wireless local area network. The high reliability access point communicates with a host computer using a wired network, unless there is a break in the wired network, in which case a wireless adapter may be used to communicate with another access point.

Rypinski (US 5,461,627) discloses a method for a large scale wireless local network where user stations are mobile and connected to a hub by wireless links. The hub is connected to outside access using a wired connection.

Rejections of Claims 1-45 under 35 U.S.C. § 103(a)

The Examiner has rejected claim 1 under 35 U.S.C. § 103(a) based on the teachings of Pasanen (WO 99/22493) in view of Tehro, *et al.*, (EP 0 663 785 A2), and further in view of Mahany (US 5,546,397) and Rypinski (US 5,461,627).

It is well accepted that for a claim to be rendered obvious, the prior art reference (or references when combined) must teach or suggest all of the claim limitations. *In re Vaeck*, 947 F.2d 488, 20USPQ2d 1438 (Fed.Cir. 1991).

According to amended claim 1, multiple private, simultaneous data flows to/from wireless remote transceivers are transmitted over a shared, subscription-based wireless link to communicate over a network. None of the cited references teaches or suggests these aspects of the invention nor do they teach its advantages over the prior art. Moreover, the cited references do not disclose a system or method for aggregating data flows from multiple remote transceivers and transmitting the aggregated information of the data flows over a shared, subscription-based wireless link. Thus, it is respectfully submitted that the invention as recited in the amended claims includes a limitation not taught or disclosed by any of the references.

Mahany teaches a wireless access point that has at least two wireless adapters. Such wireless adapters are redundant and are used only to improve reliability. (Column 1, lines 43-48). The wireless access point is connected to other access points and the outside network using a wired connection. If there is a break in the infrastructure between the access points, one of the access points can establish communication with another access point by dedicating one of their wireless adapters to infrastructure communication. (Column 2, lines 11-16).

Mahany, therefore, does not teach supporting an aggregation of the data flows over a subscription-based wireless communication link between the access unit and the base station in a two-tier wireless architecture. The "two tier of low level and high level" of Mahany to which the Examiner refers are not the two levels of wireless links, but rather are merely two levels of a communication protocol in a single wireless tier: the low level being the data link communication layer and the higher level being a higher communication protocol, as discussed in Mahany at Column 1, lines 49-55.

Rypinski also does not teach or suggest aggregation of the data flows over a subscription-based wireless communication link in a two-tier wireless architecture. Rypinski only discusses an access protocol for large scale, common channel wireless local or premises area networks, in which mobile stations are connected by wireless connections to a hub, which is then connected with the outside network using a wired connection. Rypinski does not disclose the use of a wireless LAN device, nor does he appreciate the technical hurdle associated with using same.

Pasanen discloses a system in which multiple "peripheral" devices of a computer system communicate with each other over a wireless Local Area Network. A "peripheral" device is a device connected to a computer and is controlled by the computer's microprocessor. Examples of peripheral devices include disk drives, printers, and joysticks.

Pasanen, therefore, does not appreciate the technical hurdle solved by claim 1, which is simultaneously supporting multiple individual private communication links between remote transceivers and a network. Instead, Pasanen discloses a system in which many peripheral devices of a single user's work station (specifically peripheral devices 6-15) can communicate with each other over a wireless Local Area Network (LAN). At page 1 line 11-15, Pasanen discloses that information can be passed between "the mobile station and a device connected to the local area network." (emphasis added). Thus, Pasanen discloses wireless support for only a single peripheral device at a time and does not anticipate supporting multiple simultaneous, individual data flows. Nor does Pasanen teach or suggest aggregating data flows of multiple private links for transmission over a subscription-based wireless link.

In fact, Examiner actually concedes that Pasanen does not teach or suggest that the base station is coupled to a network via a subscription-based link. For this aspect of the invention, several textual passages in Tehro have been cited as well as Fig. 3. Specifically, the Examiner states that Tehro teaches a use of a base station in communication with a network so that a LAN can communicate with the network.

But, it is respectfully submitted, Tehro also does not address the technical hurdles overcome by the present invention in claim 1. For example, Tehro simply illustrates in Fig. 1 that a single computer can be connected to a network via a wireless connection provided by a mobile phone.

In contradistinction, the present invention as in claim 1 recites establishing multiple individual wireless short-range private wireless communication links. Additionally, claim 1 recites that data flows from the multiple individual wireless links are aggregated for transmission

over a subscription-based wireless link. Tehro (Fig. 1) does not disclose aggregating data flows from multiple private links because, as shown, a single transceiver (mobile phone 10) supports only one private data flow from computer 12.

The Examiner also refers to Fig. 3 in Tehro to reject the claimed invention. As is shown there, a Local Area Network 1 is coupled to a mobile phone 15 to transmit over a wireless link to base station BTS4 and BSC. However, this aspect of Tehro also does not teach the claimed invention.

First, Fig. 3 of Tehro does not disclose the use of a wireless LAN. Note that he uses a "squiggle" between the BTSC and mobile phone 15 to identify a wireless link. However, there is no "squiggle" in Fig. 1 associated with LAN 1 and LAN-controller 14 to identify another wireless link. Thus, Tehro does not disclose the use of a wireless LAN device, nor does he appreciate the technical hurdle associated with using same.

Note also that Fig. 3 nor its related text discloses a use of multiple short-range private wireless links as in the claimed invention. This further distinguishes Tehro the claimed invention over Tehro.

Assume, arguendo, that LAN 1 were a wireless device. Tehro still would not teach or suggest supporting the use of multiple private simultaneous links as in claim 1. Similar to Pasanen, Tehro thus does not teach or suggest the technique of aggregating data flows for multiple private links and transmitting the data information over a shared, subscription-based wireless communication link. Consequently, Pasanen and Tehro, individually or combined, do not teach the claimed invention.

The cited references, separately or in combination with each other, do not show a two-tier wireless architecture, in which multiple mobile devices may be connected to an access point, which, in turn, is connected to a hub using a subscription-based wireless link. The invention as in claim 1 is both novel and advantageous over the prior art. For example, in contradistinction to

the cited references, the claimed invention can support multiple simultaneous connections for a plurality of users that share use of a subscription-based wireless link. Overall costs such as fees associated with the subscription-based link can be shared among multiple users so that the cost of use for each user is thus reduced.

Additionally, the claimed invention is advantageous over the prior art because it is not necessary to maintain an individual subscription-based wireless link for each of multiple users. More specifically, instead of maintaining multiple individual subscription-based links for each user, a shared subscription-based link can be used by many users. Consequently, the excess overhead of wireless resources associated with maintaining multiple links can be reduced and wireless resources can be used more efficiently by many users.

As mentioned in Applicants specification, the claimed invention can be deployed at large multi-corporate meetings where meeting participants use laptop computers to acquire access to either the Internet or their own remotely located network and data bases. For example, each individual in a group of corporate representatives attending an off-site meeting can be provided their own private computer network connection by locating a hub, as in claim 1, in the vicinitty of the users to support the multiple private short-range links. Over the multi-tiered wireless system of the claimed invention, representatives can simultaneously access secure (private) data information such as e-mails even though the subscription-based link is shared. In this way, business executives can access limitless information at the remote location without each having to pay a fee for a separate subscription-based link.

It is submitted in view of the above amendment and remarks that claim 1 is novel and non-obvious as it incorporates advantageous techniques contrary to previously accepted wisdom and blueprints for the inventive apparatus can not be found in the individual or combined cited references. Accordingly, it is submitted that independent claim 1 is in condition for allowance over the prior art. Further examination and reconsideration of the rejection of claim 1 and corresponding dependent claims 2-18 and 38-41 is respectfully requested.

Independent Claim 19 also recites the same distinguishing limitations as found in claim 1, such as two tiers of wireless connections and data messages aggregation from multiple individual logical data flows for transmission over a shared radio channel. Based on this technique, each of multiple users utilizing a first wireless link can privately communicate over a shared wireless communication link. Claim 19 is not obvious in view of the prior art for at least the same reasons as the independent Claim 1. Allowance of claim 19 and corresponding dependent claims 20-37 and 42-45 is respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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